

What is claimed is:

1. An uninterruptible power supply comprising:

5 a power supply unit for generating DC power at a predetermined voltage from AC power supplied from the outside to supply the DC power to an electronic device; and

10 a rechargeable battery unit including rechargeable battery cells for storing the power supplied thereto from said power supply unit for supplying said electronic device with the power stored in said rechargeable battery upon service interruption of said AC power,

wherein said rechargeable battery unit comprises:

15 a battery state monitoring unit for monitoring a state of said rechargeable battery cells; and

communicating means for notifying said electronic device of information indicative of the state of said rechargeable battery detected by said battery state monitoring unit.

20 2. The uninterruptible power supply according to claim 1, wherein:

said rechargeable battery cells comprise nickel-metal hydride rechargeable batteries.

25 3. The uninterruptible power supply according to claim 1, wherein:

30 said battery state monitoring unit comprises functions of detecting a battery voltage, a charge current and/or a battery temperature of said rechargeable battery cells, determining a fully charged state of said rechargeable battery cells based on the information detected thereby, and calculating a charge capacity and/or a lifetime of said rechargeable battery cells.

4. The uninterruptible power supply according to claim 1,

wherein:

said communication means notifies said electronic device of at least one of a battery voltage, a battery temperature, a charge current, a discharge current, a battery capacity, a lifetime, the number of discharges, and a replacement time of said rechargeable battery cells, as said information indicative of the state of said rechargeable battery cells.

5. The uninterruptible power supply according to claim 1, wherein:

said rechargeable battery unit comprises a charge controller for controlling charging of said rechargeable battery cells in accordance with a battery voltage and/or a battery temperature of said rechargeable battery cells detected by said battery state monitoring unit.

6. The uninterruptible power supply according to claim 1, wherein said power supply unit comprises:

a first inverter for converting the AC power supplied from the outside to AC power for driving a primary winding of an insulating transformer;

a DC voltage stabilizer circuit for retrieving power from a secondary winding of said insulating transformer to generate a predetermined DC stabilized voltage;

a charging unit for retrieving power from a ternary winding of said insulating transformer for use in charging said rechargeable battery cells; and

a second inverter for DC/AC converting the power supplied from said rechargeable battery cells for driving said ternary winding.

7. The uninterruptible power supply according to claim 1, wherein:

said rechargeable battery unit comprises a power supply monitoring unit for monitoring a state of said

power supply unit.

8. The uninterruptible power supply according to claim 1, wherein:

said rechargeable battery unit comprises performance  
5 determining means for determining backup performance of  
said rechargeable battery cells for said electronic device  
in accordance with a battery temperature of said  
rechargeable battery cells and the power consumption by  
said electronic device, and result outputting means for  
10 outputting the result of determination.

9. The uninterruptible power supply according to claim 8, wherein:

said performance determining means calculates the  
electric energy used by said electronic device from the  
15 current value supplied to said electronic device from said  
power supply unit, and determines based on the power  
consumption energy and the battery temperature of said  
rechargeable battery cells whether or not said  
rechargeable battery cells are capable of supplying said  
20 electronic device with backup power which can guarantee  
the operation of said electronic device.

10. The uninterruptible power supply according to claim 8, wherein:

said result output means comprises a display unit for  
25 displaying the result of determination as to the backup  
performance of said rechargeable battery cells for said  
electronic device, or notifying means for notifying said  
electronic device body of the result of determination.

11. The uninterruptible power supply according to claim 1,  
30 wherein:

said power supply unit and/or said rechargeable  
battery unit comprise an alarm function for detecting an  
interruption of the AC power supplied from the outside to

inform the interrupted AC power.

12. The uninterruptible power supply according to claim 11, wherein:

5 said alarm function includes means for informing the interrupted AC power through a visual display and/or rumbling; and

resetting means for stopping said information.

13. The uninterruptible power supply according to claim 1, wherein said rechargeable battery unit comprises:

10 charge energy detecting means for detecting a charge energy of said rechargeable battery cells;

charging/discharging detecting means for detecting a charging/discharging state of said rechargeable battery cells;

15 failure detecting means for detecting a failure of said rechargeable battery cells and/or said power supply unit;

charge energy display means for displaying the charge energy of said rechargeable battery cells detected by said

20 charge energy detecting means in multiple stages;

charging/discharging display means for displaying the charging/discharging state of said rechargeable battery cells detected by said charging/discharging detecting means; and

25 alarming means for informing a failure detected by said failure detecting means.

14. The uninterruptible power supply according to claim 13, wherein:

30 said charge energy display means divides the charge energy of said rechargeable battery cells into  $n$  stages ( $n$  is a natural number equal to or larger than two), wherein said charge energy display means includes  $n$  display segments corresponding to the respective stages, said  $n$

display segments being selectively driven to display the charge energy in multiple stages.

15. The uninterruptible power supply according to claim 13, wherein:

5       said charging/discharging display means comprises a function of displaying a charging state and a discharging state of said rechargeable battery cells in different display forms, and stops the display when said rechargeable battery cells reach a full charge.

10 16. The uninterruptible power supply according to claim 13, wherein:

      said alarming means informs a failure of said rechargeable battery cells and/or said power supply unit continuously until a reset instruction is given after  
15 detecting the failure.

17. The uninterruptible power supply according to claim 13, wherein:

      said charge energy detecting means comprises a function of maintaining the same output as that generated  
20 when the full charge is detected to drive said charge energy display means even if said charge energy detecting means detects a reduction in the charge energy due to a self discharge of said rechargeable battery cells after the full charge of said rechargeable battery cells has  
25 been detected.

18. The uninterruptible power supply according to claim 1, further comprising:

      a cooling fan incorporated in a housing which integrally accommodates said electronic device, said power  
30 supply unit, and said rechargeable battery unit for cooling down at least one of said electronic device, said power supply unit and said rechargeable battery unit,

      wherein said power supply unit or said rechargeable

battery unit comprises a fan lifetime detecting function for determining a lifetime or a state of said cooling fan for notification to said electronic device.

19. The uninterruptible power supply according to claim  
5 18, wherein:

said rechargeable battery unit is integrally incorporated and packed in a case which is mounted in a drive bay previously prepared for a peripheral device in said housing, and mounted in said drive bay of said  
10 housing for use therein.

20. The uninterruptible power supply according to claim 1, wherein:

said rechargeable battery unit comprises a cooling fan for cooling down said rechargeable battery cells, and  
15 a fan controller for controlling the operation of said cooling fan.

21. The uninterruptible power supply according to claim 20, wherein:

said fan controller detects the temperature of said  
20 rechargeable battery to operate said cooling fan.

22. The uninterruptible power supply according to claim 20, wherein:

said fan controller comprises a function for forcedly disabling said cooling fan to operate when said  
25 rechargeable battery cells are being charged.